

In the Claims

1. (previously presented) A method for *in vitro* transcription of mRNA and/or translation of polypeptides, the method comprising:

synthesizing said mRNA and/or polypeptides in a cell-free reaction mixture of greater than about 15 μ l volume, comprising an antifoam agent at a concentration of at least 0.00007%, and not more than 0.007% by weight, wherein the antifoam agent is other than a detergent.

2. (previously presented) The method of Claim 1, wherein said synthesizing comprises translation of mRNA to produce polypeptides.

3. (previously presented) The method of Claim 2 wherein said synthesizing also comprises transcription of mRNA from a DNA template.

4. (canceled)

5. (previously presented) The method of Claim 2, wherein said reaction mix comprises a volume of greater than 100 μ l.

6. (currently amended) The method of Claim 5, wherein said reaction has a yield that is at least about 90% of the yield in a comparable ~~small-scale~~ reaction of less than 15 μ l volume.

7-11 (canceled)

12. (currently amended) The method of Claim 1, wherein the anti-foam agent is a block copolymer surfactant with low ethylene oxide content that provide defoaming/antifoaming action by forming an insoluble monolayer at the air/water interface of the foam as a function of both the cloud point of the copolymer and the use temperature.

13. (previously presented) A method for *in vitro* transcription of mRNA and/or translation of polypeptides, the method comprising:

synthesizing said mRNA and/or polypeptides in a cell free reaction mixture of greater than about 15 μ l volume, comprising:

a cell extract; a template for production of the mRNA and/or polypeptides; monomers for the mRNA and/or polypeptides to be synthesized; and such co-factors, enzymes and other reagents that

are necessary for the synthesis; and an anti-foam agent at a concentration of at least 0.00007%, and not more than 0.007% by weight, wherein the antifoam agent is other than a detergent.

14. (canceled)

15. (currently amended) The reaction mixture of Claim 13, wherein the anti-foam agent is a block copolymer surfactant with low ethylene oxide content that provide defoaming/antifoaming action by forming an insoluble monolayer at the air/water interface of the foam as a function of both the cloud point of the copolymer and the use temperature.

16. (previously presented) A reaction mixture for cell-free synthesis of biological macromolecules, comprising:

a cell extract; a template for production of the macromolecule; monomers for the macromolecule to be synthesized; and such co-factors, enzymes and other reagents that are necessary for the synthesis; and an anti-foam agent other than a detergent at a concentration of at least 0.00007%, and not more than 0.007% by weight.

17. (previously presented) The method of Claim 1 wherein oxidative phosphorylation is activated in the cell-free reaction mixture.

18 (previously presented) The method of Claim 1 wherein said reaction mixture comprises a volume of greater than 1000 μ l.

19 (previously presented) The method of Claim 1, wherein said synthesizing is performed in a reactor.

20 (previously presented). The method of Claim 19, wherein the reactor is a bubble reactor.

21 (currently amended) The reaction mixture of Claim 16, wherein the anti-foam agent is a block copolymer surfactant with low ethylene oxide content that provide defoaming/antifoaming action by forming an insoluble monolayer at the air/water interface of the foam as a function of both the cloud point of the copolymer and the use temperature.

22. (new) The method of Claim 1, wherein the antifoam agent is selected from alkyl polyoxyalkylene glycol ethers; siloxane polymers; and mixtures of organic non-silicone polypropylene based polyether dispersions.

23. (new) The method of Claim 13, wherein the antifoam agent is selected from alkyl polyoxyalkylene glycol ethers; siloxane polymers; and mixtures of organic non-silicone polypropylene based polyether dispersions.

24. (new) The reaction mixture of Claim 16, wherein the antifoam agent is selected from alkyl polyoxyalkylene glycol ethers; siloxane polymers; and mixtures of organic non-silicone polypropylene based polyether dispersions.